Patent Office
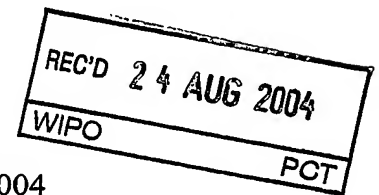**Canberra**

I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2004902799 for a patent by CTECH CLOSURES PTY LTD as filed on 27 May 2004.

REC'D 2 4 AUG 2004
WIPO
PCT

WITNESS my hand this
Twelfth day of August 2004

J. Billingsley

JULIE BILLINGSLEY
TEAM LEADER EXAMINATION
SUPPORT AND SALES

PRIORITY
DOCUMENT
SUBMITTED OR TRANSMITTED IN
COMPLIANCE WITH RULE 17.1(a) OR (b)

The present invention is a neck for a container and a closure and a combination of closure and container neck.

The following examples are non-limiting examples

Fig. 1 is a side view of the container neck 60 having
> One or more threads 67 including multi start threads which co-operate with corresponding threads on a closure and
> an annular tamper bead 62 which may be segmented and if segmented then each segment being ramped similar to 66C and having an angled engagement face similar to the features 66A and
> one or more ramped projections 66 with
>> angled engagement faces 66A having
>>> a width 'J' which is not more than the distance that the tamper bead 62 projects beyond the outside wall 64 of the container neck and
>>> is designed to interact with engagement portion 58 on closure 10 (refer Fig. 2) such that the engagement portion 58 which consists of more than one separate elements 58 (shown in Fig. 2B before being folded into the engagement position in Fig. 2) upon removal rotation and as the leading edge of the engagement elements 58 engages with the angled engagement faces 66A of container neck ramped projections 66 then upon further removal rotation the engagement elements 58 are driven downwards along angled face 66A placing axial stress on and hastening the severance of the frangible bridges 50 thus ensuring that tamper evidence operates before the seal between closure and container is broken.
>> faces 66C which present a ramped surface to minimise interference and enable the engagement portions 58 to pass easily over the projections upon application of the closure to the neck
>> faces 66B which are of a dimension 'K' which at least exceeds the width of the space 58C between the engagement portions 58 of the tamper band 55 so that the free ends 59 engagement portions 58 will be retained below the edge 66M of the projection 66 thereby making a more visible gap between the severed tamper band 55 and the closure skirt 30 .

Fig. 2 is a partial cross section of a tamper evident closure 10 (shown partially) having
  a top wall 20 and depending from it
  an annular sealing device 40 sealingly engaging the inside wall 65 of the container neck 60 and
    another annular sealing device 41 which may also but not necessarily be used to sealingly engage with either or both the upper wall 63 and the outer wall 64 of the container neck 60 (shown not fully sealingly engaged).
The design of the closure following the formula being (when the closure is fully applied)
  the distance 'A' (in this example being the distance over which an interference fit and seal continues to occur between the annular sealing device 40 and the inner wall 65 of the container neck 60 during removal of the closure from the fully applied position (not shown) on the container neck and further described as being the distance between line A1 [being the line touching the top wall 63 of the container neck] and the line A2 [being the line touching point of sealing engagement between annular sealing device 40 and the inner wall 65 of the container neck 60 measured at the point when the closure is fully applied(not shown) to the container neck.
  In an alternative sealing method the formula may take the distance 'A' to represent the distance shown in Fig. 2A between line A3 and the line A4 being the distance over which an interference fit and seal continues to occur between the annular sealing means 44 and the outer wall 64of the container neck 60 during removal of the closure from the fully applied position.
shall be always sufficiently larger than
  the distance 'B' (being the distance between the engagement surface 61 of the tamper bead 62 and the engagement surface 59 of the tamper ring engagement means 58 when the closure is fully applied to the container)
  plus a distance 'C' (not shown) equaling the amount of compression that occurs in the tamper ring engagement means during the process of removal
  plus a distance 'D' (not shown) equaling the amount of stretch that occurs under stress during closure removal in the frangible bridges 50 connecting the tamper evidence annular ring 55 to the closure skirt 30
  plus a distance 'E' (not shown) being the distance equal to the tolerance allowed in the measurement specifications of the container neck 60 and the closure 10
  plus as may be required a distance for margin of safety for a particular closure and neck combination.

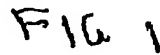Fig.3 is a cross section of the ramped projection 66

Fig.4 is a cross section of the container neck showing the preferred location of ramped projections 66 and we disclose a method of manufacture and mould assembly to make the said container necks as follows.
The line 'V' 'V' is the parting line of 2 mould portions but as shown by the line 'V1' 'V1' in Fig1. the mould part line must follow the path dictated by the boundary between faces 66C and 66B in the the ramped projections 66-2 and 66-4 .

Persons skilled in the art may reveal alternate versions of this closure system and container neck without departing from the present invention.

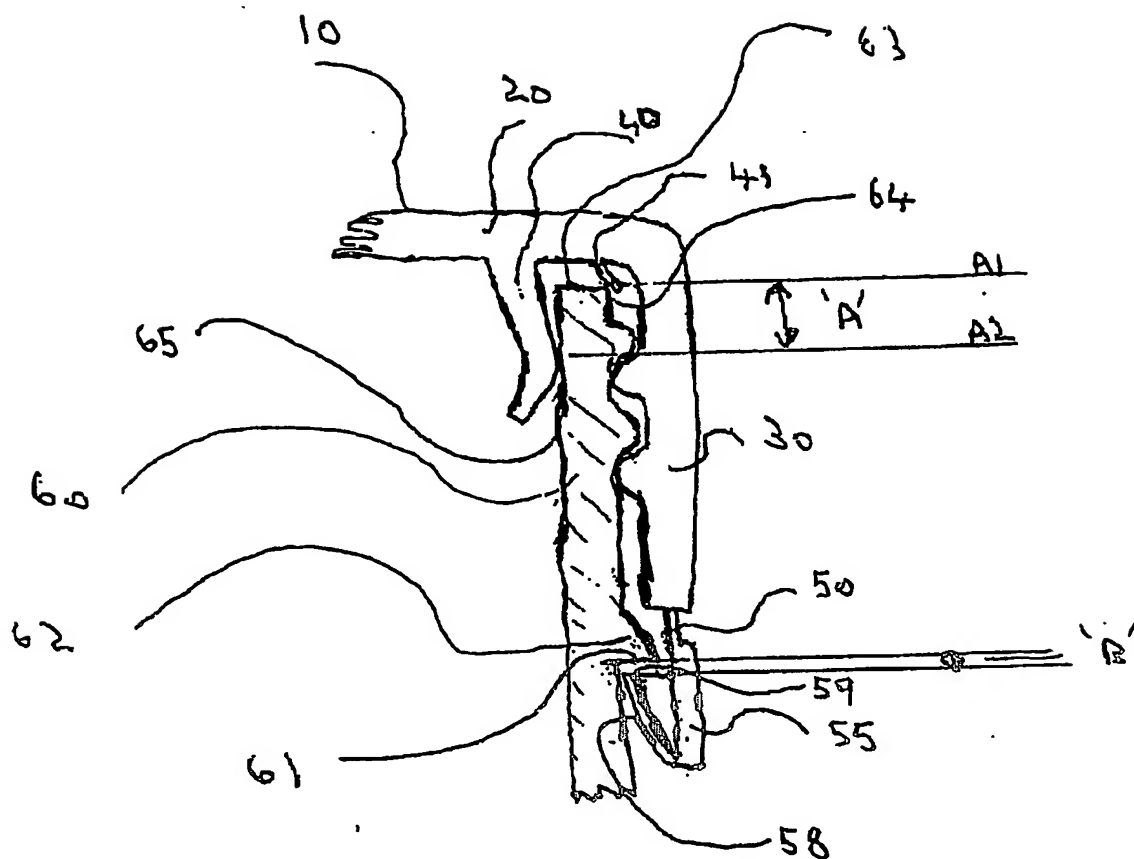Christopher Lyndon Higgins
21 Bayview Rd.
Noosa Heads 4567

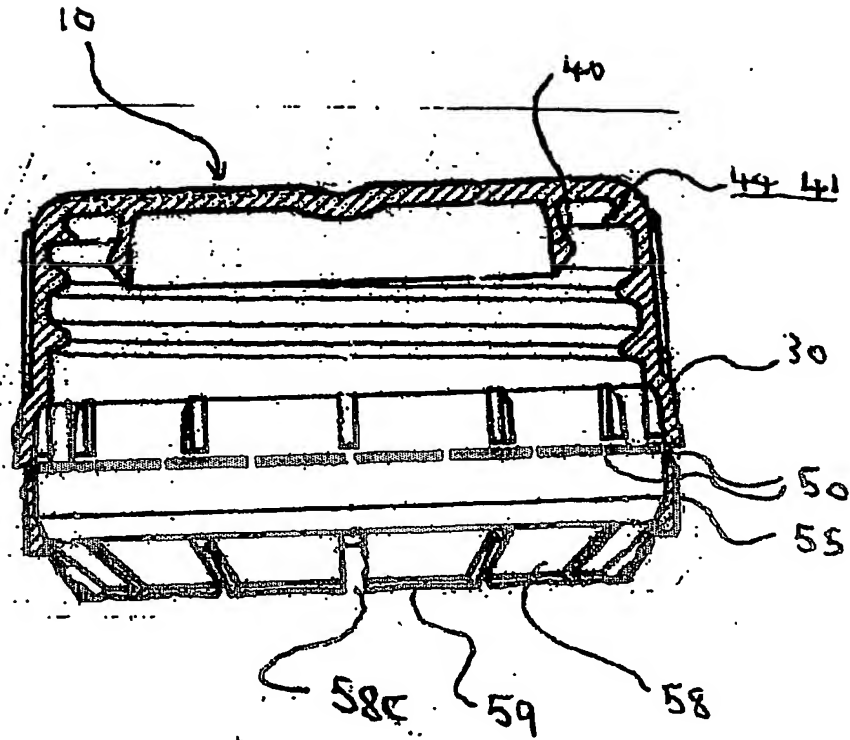CLH prov SSN1   Page 3 of 3   27/05/2004

FIG 1

10

20

40

63

43

64

A1

'A'

A2

65

30

60

50

62

59

55

61

58

FIG 2.

FIG 2 B

CROSS SECTION OF CLOSURE
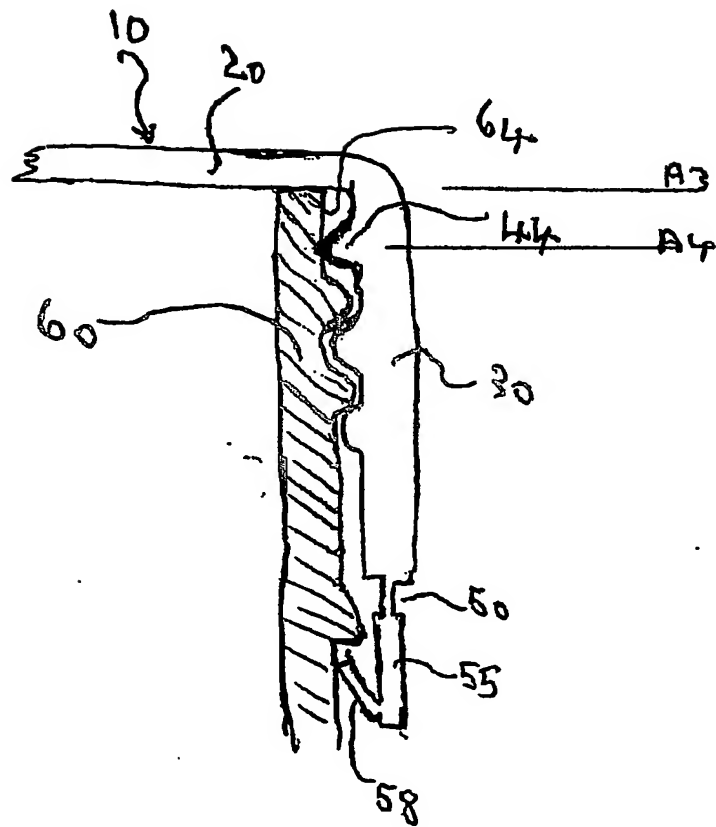
FIG 2A
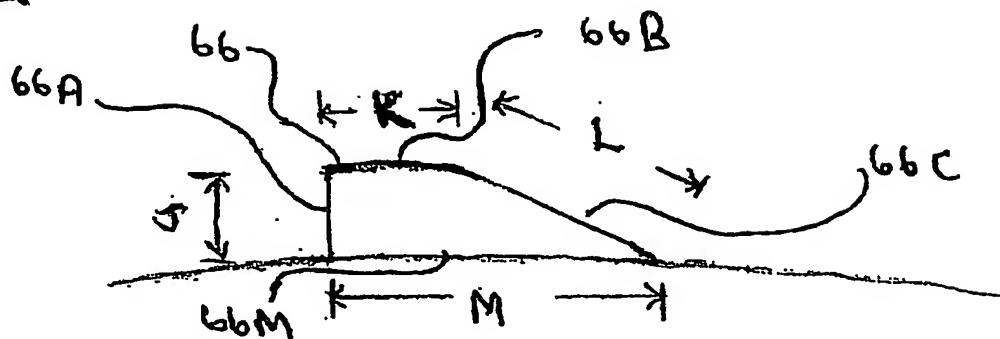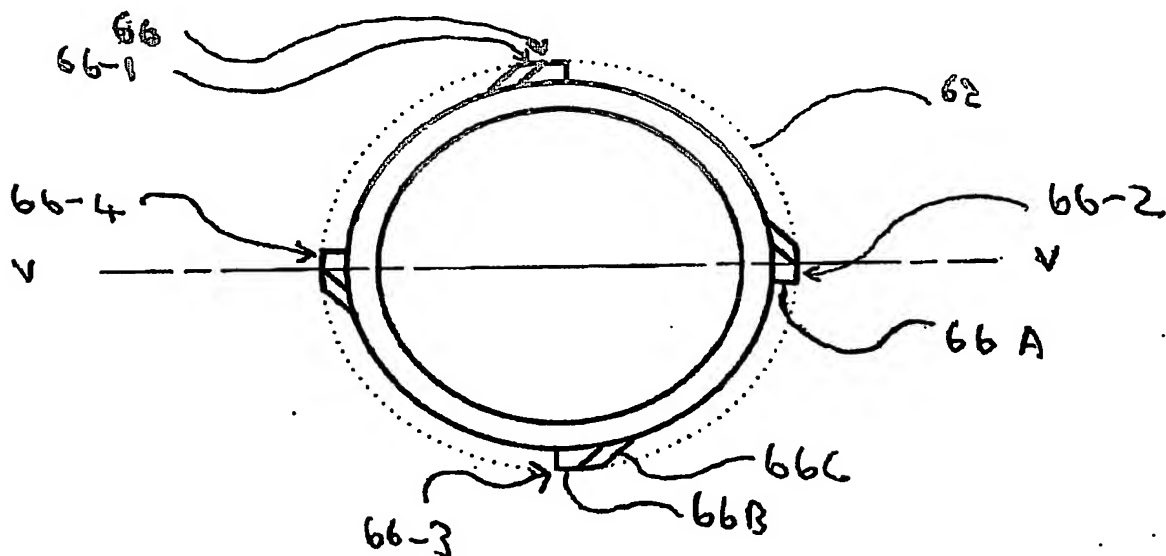
FIG 3   CROSS SECTION Y Y
            BETWEEN Z₁ Z₂

FIG 4   CROSS SECTION W W